8.0 Gunnison, Colorado, Disposal Site

8.1 Compliance Summary

The Gunnison Disposal Site was inspected on September 3 and 4, 2003, and was in excellent condition. A missing perimeter sign was replaced and a new entrance sign was installed. The identification numbers on several monitor wells were repainted. Reseeded areas along the former Chance Gulch and Tenderfoot Mountain haul roads have not yet successfully revegetated because of continued drought conditions. Canada thistle plants were identified at two locations and were sprayed with herbicide in fall 2003. No cause for a follow-up inspection was identified.

8.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Gunnison, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Gunnison, Colorado, Disposal Site* (DOE/AL/62350−222, Rev. 2, U.S. Department of Energy [DOE], Albuquerque Operations Office, April 1997) and in procedures established by the DOE office at Grand Junction to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 8–1.

Table 8–1. License Requirements for the Gunnison, Colorado, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 3.1	Section 8.3.1
Follow-up or Contingency Inspections	Section 3.5	Section 8.3.2
Routine Maintenance and Repairs	Section 5.0	Section 8.3.3
Ground Water Monitoring	Section 4.1	Section 8.3.4
Corrective Action	Section 6.0	Section 8.3.5

8.3 Compliance Review

8.3.1 Annual Inspection and Report

The site, located southeast of Gunnison, Colorado, was inspected on September 3 and 4, 2003. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 8–1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

8.3.1.1 Specific Site Surveillance Features

Access Road, Entrance Gate, Signs, and Fence—The road to the site is an all-weather gravel road maintained by the U.S. Bureau of Land Management (BLM) and was in good condition. The south entrance gate is a simple barbed wire gate in the stock fence that surrounds the site. The gate, secured by a padlock and chain to the adjoining post, was in good condition.

An entrance sign and 45 perimeter signs are attached to the posts of the perimeter fence. The
8A entrance sign, just east of the entrance gate, was replaced with a new sign (PL–1); the former sign identified DOE–Albuquerque as the owner. Perimeter sign P1 was missing and was replaced. Perimeter sign P37 is bent and has cracked paint, but was still legible. Perimeter signs P38, P39, P42, and P44 have bullet holes in them, but all were still legible. The other perimeter signs were in excellent condition.

A 3-strand barbed wire fence delineates the site perimeter. Two barbed wire gates—one on the north fence line, the other on the east fence line—provide monitor well access. The fence and gates were in excellent condition.

Site Markers, Survey Monuments, and Boundary Monuments—The two site markers, three combination survey/boundary monuments, and eight boundary monuments were in excellent condition.

Monitor Wells—The ground water monitoring network at the Gunnison disposal site consists of
8B 16 wells. All monitor wells were secure and in excellent condition. Due to faded or peeled paint, the identification numbers on five of the compliance wells were repainted.

Fourteen former monitor wells on and off the disposal site were decommissioned during 2001. Inspectors visited these former well sites to ensure the surface had been reclaimed properly. All reclaimed sites were in good condition. At the former location of wells MW−0640 and MW−0713 (near perimeter sign P42), a patch of Canada thistle—a state-listed noxious weed—observed in the
8C 2002 inspection had been sprayed with herbicide. One thistle plant was found at the location during the 2003 inspection and was treated with herbicide in fall 2003.

8.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into four areas referred to as transects: (1) the riprap-covered disposal cell; (2) the riprap-covered side slopes, apron, and diversion ditches; (3) the area between the disposal cell and the site boundary; and (4) the outlying area. Transect four included an inspection of several reseeded areas on reclaimed former haul roads.

Top of Disposal Cell—The top of the disposal cell was in excellent condition. There was no evidence of erosion, settling, or slumping. Several isolated patches of grass were observed on the disposal cell cover; however, these plants do not present a hazard or cause for concern at this time.

Side Slopes, Apron, and Diversion Ditches—The riprap-covered side slopes, apron, and diversion ditches were in excellent condition. No evidence of slumping, settling, or significant encroachment of vegetation was observed.

At the southeast corner of the cell apron, water draining from the cell occasionally ponds in a low-lying area along the edge of the riprap. The riparian-type vegetation that has established indicates this area retains moisture much of the time. Water collection in this area does not pose a problem because the cell is designed to drain to the southeast, and any water that ponds is below the elevation of the tailings. This area was dry at the time of the inspection.

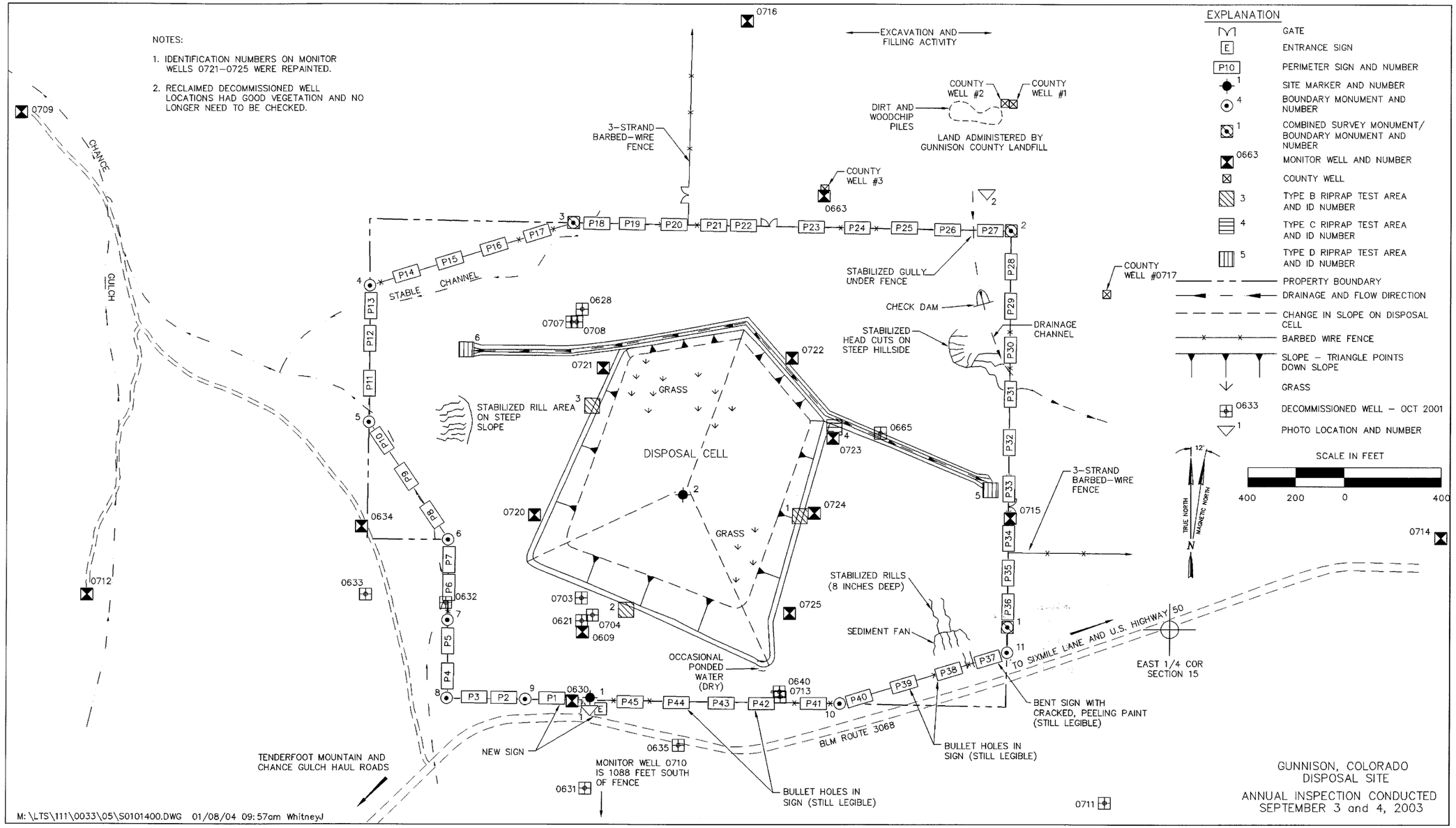

Figure 8–1. 2003 Annual Compliance Drawing for the Gunnison, Colorado, Disposal Site

The condition of the riprap in six test squares was inspected. Each test square, roughly 1 square meter, is in a "critical flow path" location in the diversion channels. Corners of each test square are marked with orange paint. During the 2002 inspection, inspectors installed a steel t-post covered with white PVC pipe on the northeast corner of each test square. No degradation of the rock was noted when visual comparisons were made with the 2002 inspection photographs of the test squares. As outlined in the Long-Term Surveillance Plan, annual photographing and comparing of these test plots occurred through the 2002 inspection, and the test plots will be photographed every 5 years until 2017. DOE will re-photograph the test squares in 2007.

Area Between the Disposal Cell and the Site Boundary—Reclaimed and undisturbed areas occur between the disposal cell and the site perimeter. Areas disturbed during cell construction were regraded and then reclaimed by planting a seed mix. At the time of the 2003 inspection, the seeded areas were in excellent condition.

During the 2003 inspection, four areas of the site containing erosional features were investigated: rills in the southeast corner, north of perimeter sign P38; gullied areas in the northeast; a drainage channel in the northwest; and rills on a steep west-facing slope on the west side.

- In the southeast erosional area, several 8-inch-deep rills had formed in the steeper portion of the slope, and a fan-like accumulation of eroded sediments had formed just below the rills. The area was found to be in stable condition. Vegetation is becoming well established on the steeper portions of the eroded slopes.

- In the northeast portion of the property, a series of deep gullies and headcuts had formed at a natural slope break in the terrain. As noted in previous inspection reports, these gullies appear to be stabilizing with the successful establishment of sagebrush and various grasses. The drainage channel between perimeter signs P30 and P31 does not appear to be worsening.

- In the northwest portion of the property, a drainage channel tributary to Chance Gulch was investigated. This area was stable and in good condition.

- On the west side of the property, rills had been noted on the steep west-facing slope during previous inspections. Surface rock fragments appear to have stabilized the slope.

The steep topography of these areas makes them susceptible to erosion. Inspectors will continue to monitor for signs of increased erosion or any other indications of slope instability, but no action is required at this time.

Outlying Area—Gunnison County owns the land that adjoins the disposal site boundary to the north and east, and uses the land for a municipal landfill. In 2001, the county installed several fences and monitor wells in these areas. The monitor wells are identified as County Wells 1, 2, and 3 on the drawing. DOE transferred former monitor well MW−0717 to the county in 2001. The county installed unlocked wire gates to allow DOE access to their monitor wells.

Landfill operations have encroached to within approximately 400 feet of the northeast corner of the DOE property boundary. Dirt and woodchips are piled at that location (PL–2), and trenching and filling activities are occurring immediately north of the piles. Although this activity does not appear to pose a threat to the disposal site, DOE will continue to monitor the level of activity occurring near the site property boundaries and its outlying monitor wells.

Inspectors met with a BLM representative to assess revegetation success at several sites along the former Chance Gulch and Tenderfoot Mountain haul roads. The former Chance Gulch haul road is approximately 0.25 mile west of the disposal cell, and the former Tenderfoot Mountain haul road extends from the disposal cell westward to the former processing site. A BLM right-of-way permit requires successful revegetation of both haul roads. Although most of the reclaimed areas have successfully revegetated, several isolated areas along the haul roads were reseeded in October 2000 to meet BLM's vegetation success criteria for species diversity.

Revegetation of reseeded areas on Chance Gulch haul road has been unsuccessful, primarily because of continued drought conditions, and is not expected to be successful in the future if no action is taken. The BLM permit requires the establishment of forbs (e.g., alfalfa, buckwheat, vetch, and wild flowers) to improve habitat for sage grouse and pronghorn antelope. To meet permit requirements, DOE plans to reseed the affected areas in 2004 with a new seed mix and cover these areas with mulch.

Inspectors noted that vegetative cover within the reseeded areas on Tenderfoot Mountain haul road had improved somewhat from the previous year. In general, the percentage of weedy plant cover had decreased, and the percentage of desirable plant cover had increased. However, the reseeded areas continue to be dominated by annual weeds. Sparse vegetative cover has allowed the development of rills in a portion of one reseeded area. Revegetation success has been hindered by severe drought conditions during the last 2 years in the Gunnison area. If vegetative cover has not improved by the time of the 2004 inspection, the BLM representative will likely expect DOE to reseed the sites in fall 2004.

Several patches of Canada thistle were found in the catch basin of a check dam on the reclaimed
8D Tenderfoot Mountain haul road during a previous inspection and subsequently were sprayed with herbicide. New growth of the thistle was observed at this location during the 2003 inspection and was sprayed in fall 2003.

8.3.2 Follow-up or Contingency Inspections

No follow-up or contingency inspections were required in 2003.

8.3.3 Routine Maintenance and Repairs

A new entrance sign was installed, a missing perimeter sign was replaced, identification numbers were repainted on several monitor wells, and Canada thistle was sprayed with herbicide at two locations.

8.3.4 Ground Water Monitoring

DOE monitors ground water at the Gunnison disposal site to demonstrate compliance with U.S. Environmental Protection Agency ground water protection standards in 40 CFR 192, and to
8E demonstrate that the disposal cell is performing as designed. The monitoring network consists of 16 wells, including six point of compliance wells to determine cell performance, two background wells, and eight wells for water level measurements (Table 8−2). Ground water was sampled and water levels were measured annually from 1998 through 2001; samples and measurements will be collected once every 5 years thereafter. No ground water sampling or measurements were required in 2003; the next sampling and measurement event is scheduled for 2006. The indicator analyte for cell performance is uranium. Analytical results obtained thus far have been consistent, with concentrations of uranium at or below background levels, indicating that the disposal cell is performing as designed.

Table 8–2. Active Monitor Wells at the Gunnison, Colorado, Disposal Site

Compliance and Background Wells	Water Level Wells
MW−0720 (compliance)	MW−0630
MW−0721 (compliance)	MW−0634
MW−0722 (compliance)	MW−0663
MW−0723 (compliance)	MW−0709
MW−0724 (compliance)	MW−0710
MW−0725 (compliance)	MW−0712
MW−0609 (background)	MW−0714
MW−0716 (background)	MW−0715

8.3.5 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2003.

8.3.6 Photographs

Table 8–3. Photographs Taken at the Gunnison, Colorado, Disposal Site

Photograph Location Number	Azimuth	Description of Photograph
PL–1	20	Site marker SMK–1 and the new entrance sign.
PL–2	0	County landfill dirt and woodchip piles near the northeast corner of the disposal site.

GUN 9/2003. PL–1. Site marker SMK–1 and the new entrance sign.

GUN 9/2003. PL–2. County landfill dirt and woodchip piles near the northeast corner of the disposal site.

End of current section